Claims

- 1 1. A method for transmitting an input stream of symbols in a multiple-input / 2 multiple-output wireless communications system including M subgroups of 3 transmitting antennas, comprising: selecting L subgroups of the M subgroups of antennas, where L < M; 4 5 demultiplexing, the input stream into L substreams, there being one 6 substream for each one of L selected subgroups of antennas; 7 adaptively modulating and coding each of the L substreams to a maximum 8 data rate while achieving a predetermined performance on an associated channel 9 used to transmit the substream; and 10 space-time transmit diversity encoding each of the L coded substreams into a 11 set of output streams, there being one output stream in each set for each antenna of 12 each one of the L subgroups of antennas.
- 1 2. The method of claim 1, further comprising:
- 2 feeding back, from a receiver, channel conditions; and
- 3 selecting the L substreams to be produced by the demultiplexing according
- 4 to the channel conditions.
- 1 3. The method of claim 2, in which the channel conditions measure a signal to
- 2 interference plus noise ratio of the output streams received in the receiver.

- 1 4. The method of claim 1, in which the adaptive modulation and coding depends on
- 2 the number L of the substreams.
- 5. The method of claim 1, in which L is zero to increase an overall capacity of the
- 2 system including a plurality of receivers.
- 1 6. The method of claim 1, in which the adaptive modulating and coding, further
- 2 comprises:
- 3 coding each substream;
- 4 interleaving each coded substream; and
- 5 symbol mapping each interleaved substream.
- 1 7. The method of claim 1, further comprising:
- demultiplexing each output stream into a plurality demultiplexed output
- 3 streams;
- 4 multiplying each of the plurality of demultiplexed output streams by an
- 5 orthogonal variable spreading factor;
- 6 adding the demultiplexed output streams, for each ouput stream, after
- 7 multiplication into a summed output stream corresponding to each output stream;
- 8 and
- 9 multiplying each summed output stream by a scrambling code.

8. A system for transmitting an input stream of symbols in a multiple-input / 1 multiple-output wireless communications system including M subgroups of 2 3 transmitting antennas, comprising: a switch configured to select L subgroups of the M subgroups of antennas, 4 5 where L < M; 6 a demultiplexer configured to split the input stream into L substreams, there 7 being one substream for each one of L subgroups of antennas; 8 means for adaptively modulating and coding each of the L substreams to a 9 maximum data rate while achieving a predetermine performance on an associated 10 channel used to transmit the substream; and 11 means for space-time transmit diversity encoding each of the L coded 12 substream into a set of output streams, there being one output stream in each set for each antenna of each one of the L subgroups of antennas. 13